



## UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/082,141	02/26/2002	Satoru Inoue	NSUG: 853	5402
6160	7590	04/30/2004	EXAMINER	
PARKHURST & WENDEL, L.L.P. 1421 PRINCE STREET SUITE 210 ALEXANDRIA, VA 22314-2805			DEL SOLE, JOSEPH S	
			ART UNIT	PAPER NUMBER
			1722	
DATE MAILED: 04/30/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	10/082,141	INOUE ET AL.
	Examiner	Art Unit
	Joseph S. Del Sole	1722

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

**A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM  
 THE MAILING DATE OF THIS COMMUNICATION.**

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) Responsive to communication(s) filed on \_\_\_\_\_.
- 2a) This action is **FINAL**.                                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) Claim(s) 1-4 is/are pending in the application.
  - 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-4 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 26 February 2002 is/are: a) accepted or b) objected to by the Examiner.
 

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All    b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
 Paper No(s)/Mail Date \_\_\_\_\_.

- 4) Interview Summary (PTO-413)  
 Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: \_\_\_\_\_.

## DETAILED ACTION

### *Drawings*

1. Figures 4 and 5 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance. Pages 4 through 7 of the specification indicated that these drawings are prior art by stating "known ceramic honeycomb extrusion apparatus".

### *Specification*

2. The disclosure is objected to because of the following informalities: **a)** the sentence at lines 9-15 is grammatically unclear, particularly due to the awkwardly constructed portion at line 11 "... only the **were** portion" (emphasis added).

Appropriate correction is required.

### *Claim Rejections - 35 USC § 103*

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

Art Unit: 1722

2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's admission in view of Ziegler (4,770,624).

Applicant's admission (at page 1, lines 10-27) teaches a ceramic honeycomb extrusion apparatus having a biaxial screw portion, a flow regulation portion, a foreign substance removal portion and an aglet extrusion portion, which are arranged as a main portion from an upstream side of a batch flow and inherently teaches extruding a ceramic honeycomb utilizing the taught ceramic honeycomb extrusion apparatus.

Applicant's admission fails to teach the flow regulation portion including a diameter reducing portion, a cylinder portion and a diameter expanding portion arranged from an upstream side wherein 1) an inlet shape of the diameter reducing portion at a side of the biaxial screw portion is equal to an outlet shape of the biaxial screw portion; 2) an outlet shape of the diameter reducing portion at a side of the cylinder portion is

equal to an inlet shape of the cylinder portion; 3) an inlet shape of the diameter expanding portion at a side of the cylinder portion is equal to an outlet shape of the cylinder portion; and 4) an outlet shape of the diameter expanding portion at a side of the foreign substance removal portion is equal to an inlet shape of the foreign substance removal portion; fails to teach the flow regulation portion having a cassette mechanism such that only an inner portion thereof can be attached or detached; and fails to teach the cassette mechanism of the flow regulation portion is formed by assembling at least two members.

Ziegler teaches an extrusion apparatus (Fig 4) with a screw portion and a flow regulation portion (Fig 4, #70 and #74), the flow regulation portion includes a diameter reducing portion (Fig 4, in the vicinity of #68), a cylinder portion (Fig 4, in the vicinity of #66') and a diameter expanding portion (Fig 4, in the vicinity of #66'') arranged from an upstream side wherein 1) an inlet shape of the diameter reducing portion at a side of the inlet to the flow regulation portion is equal to an outlet shape of the inlet to the flow regulation portion; 2) an outlet shape of the diameter reducing portion at a side of the cylinder portion is equal to an inlet shape of the cylinder portion; 3) an inlet shape of the diameter expanding portion at a side of the cylinder portion is equal to an outlet shape of the cylinder portion; and 4) an outlet shape of the diameter expanding portion at a side of the outlet from the flow regulation portion is equal to an inlet shape of the outlet from the flow regulation portion (Fig 4); the flow regulation portion has a cassette mechanism (Fig 4, #70 and #74) such that only an inner portion thereof can be attached or detached (Fig 4, #70, the Examiner notes that this limitation is interpreted not such

that parts other the inner portion can't be attached or detached, but rather that the inner portion can be attached or detached without attaching or detaching other parts); and the cassette mechanism of the flow regulation portion is formed by assembling at least two members (Fig 4, #70 and #74) for the purpose of controlling the frictional resistance on the viscous plastic material (col 2, lines 10-13).

It would have been obvious to one having ordinary skill in the art at the time of the Applicant's invention to have modified the invention of Applicant's admitted prior art with a flow regulation portion having a diameter reducing portion, a cylinder portion and a diameter expanding portion as further taught above by Ziegler because it regulates the flow of an extrudate, decreasing the frictional resistance on the extrudate and minimizing (or eliminating) a potentially damaging temperature increase of the extrudate.

7. Claims 1 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's admission in view of Heilmayr (4,015,925).

Applicant's admission (at page 1, lines 10-27) teaches a ceramic honeycomb extrusion apparatus having a biaxial screw portion, a flow regulation portion, a foreign substance removal portion and an aglet extrusion portion, which are arranged as a main portion from an upstream side of a batch flow and inherently teaches extruding a ceramic honeycomb utilizing the taught ceramic honeycomb extrusion apparatus.

Applicant's admission fails to teach the flow regulation portion including a diameter reducing portion, a cylinder portion and a diameter expanding portion arranged from an upstream side wherein 1) an inlet shape of the diameter reducing portion at a

side of the biaxial screw portion is equal to an outlet shape of the biaxial screw portion; 2) an outlet shape of the diameter reducing portion at a side of the cylinder portion is equal to an inlet shape of the cylinder portion; 3) an inlet shape of the diameter expanding portion at a side of the cylinder portion is equal to an outlet shape of the cylinder portion; and 4) an outlet shape of the diameter expanding portion at a side of the foreign substance removal portion is equal to an inlet shape of the foreign substance removal portion.

Heilmayr teaches an extrusion apparatus (Fig 4) with a screw portion and a flow regulation portion (Fig 3, #26), the flow regulation portion includes a diameter reducing portion (Fig 3, in the vicinity of #28), a cylinder portion (Fig 3, in the vicinity of #29) and a diameter expanding portion (Fig 3, in the vicinity of #30) arranged from an upstream side wherein 1) an inlet shape of the diameter reducing portion at a side of the inlet to the flow regulation portion is equal to an outlet shape of the inlet to the flow regulation portion; 2) an outlet shape of the diameter reducing portion at a side of the cylinder portion is equal to an inlet shape of the cylinder portion; 3) an inlet shape of the diameter expanding portion at a side of the cylinder portion is equal to an outlet shape of the cylinder portion; and 4) an outlet shape of the diameter expanding portion at a side of the outlet from the flow regulation portion is equal to an inlet shape of the outlet from the flow regulation portion (Fig 3) for the purpose of increasing the rate of flow of the extrudate and to thereby aid in homogenizing the extrudate (col 3, lines 30-36).

It would have been obvious to one having ordinary skill in the art at the time of the Applicant's invention to have modified the invention of Applicant's admitted prior art

with a flow regulation portion having a diameter reducing portion, a cylinder portion and a diameter expanding portion as further taught above by Heilmayr because it increases the rate of flow of the extrudate, thereby mixing the extrudate.

***References of Interest***

8. Deutsch et al (6,296,465), Lentz (4,465,652) and Hunter (4,826,422) are cited of interest to show the state of the art.

***Correspondence***

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Joseph S. Del Sole whose telephone number is (571) 272-1130. The examiner can normally be reached on Monday through Friday from 8:30 A.M. to 5:00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ms. Wanda Walker, can be reached at (571) 272-1151. The official fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306 for both non-after finals and for after finals.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from the either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on the access to the Private PAIR system, contact the Electronic Business Center (EBC) at 886-217-9197 (toll-free).

*Joseph S. Del Sole*

J.S.D.  
April 28, 2004